

Effects of Feeding Iodine to Laying Hens

EMERY A. JOHNSON

Division of Poultry Husbandry



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FEEDING iodine to laying hens does not improve the total egg production, fertility, hatchability, or adult mortality. This does not mean that the hen requires no iodine. It does mean that an ordinary ration contains enough iodine to meet the hen's requirements.

These conclusions were arrived at after a series of experiments conducted at the Minnesota Agricultural Experiment Station, University Farm, St. Paul, Minn., and two of its branch stations, Crookston and Morris.

For ten years, interest has been growing in the value of adding iodine to the diets of the larger classes of livestock, and experiments show that beneficial results follow the use of this element in stock rations, especially in localities deficient in soil iodine. The value of adding iodine to either the drinking water or the mash of laying hens has also been much discussed, but experiments have led to rather varied results and conclusions. To discover just how beneficial such extra quantities of iodine would be, the division of poultry husbandry of the Minnesota Experiment Station made a series of experiments, involving six trials, during the season of 1931-32 and 1932-33. Each of these six trials was at least six months in duration, and four lasted ten months or longer.

A total of 974 Single Comb White Leghorn pullets were used. In five of the trials the experimental hens were divided into two equal groups. One group received one milligram¹ of potassium iodide per hen daily, and the other received no iodine, but was managed and fed in the same manner as the iodine-fed hens. The sixth trial included the two groups already described and in addition a group of hens which received three milligrams of iodide per hen daily, and a fourth group in which each hen received one milligram every third day. As far as possible, the basal rations were composed of locally raised grains, and the

¹ One milligram per hen per day is the equivalent of .013 ounces per hen per year.

mash mixtures were those used throughout the flocks for egg production. Vitamin D was supplied either as cod liver oil or by ultra-violet light irradiation.

Now for the results.

IODINE AND EGG PRODUCTION

The addition of iodine to the ration of the laying hen did not effect egg production, either for good or bad. In three of the six trials, the hens receiving the customary dose of iodine laid more eggs on the average than the hens receiving only the basal rations. In the remaining three trials the reverse was true, the hens receiving no iodine producing more eggs than those receiving iodine. At Morris, during the second year, when iodine was fed at varying levels, the hens receiving no iodine laid more eggs than the three groups receiving iodine.

FERTILITY TESTS

A total of 10,489 eggs were set at the three stations in the two hatching periods. Fertility was not influenced when potassium iodide was added to the ration. In three trials, a higher percentage of the eggs from the one-milligram, iodine-fed hens were fertile than the eggs from the hens fed no iodine, whereas in the remaining three trials the reverse was true. The eggs of the hens receiving three times as much iodine as the other groups were the least fertile. Eggs from the hens receiving iodine only every third day were more fertile than the eggs from the hens getting the customary dose.

HATCHABILITY NOT INCREASED

In four of the six trials, eggs from the hens which were not fed iodine hatched better than those from the hens receiving one milligram of iodine. On the other hand, eggs from hens receiving the triple dose and those receiving a milligram of iodine every third day gave a higher hatchability than did the eggs from the hens receiving no iodine. The fact that the eggs from the

one-milligram-a-day lot in this trial did not hatch as well as those from the control group indicates that the increases in these two instances probably were not the result of the feeding of iodine.

EFFECT ON MORTALITY

During the two years of experimentation, a rather large number of hens died at University Farm. This was caused, no doubt, by the scarcity of Vitamin D. Exposure to ultraviolet light was used both years, but, when the exposure was doubled the second year, mortality was decreased. Comparing the death rates of the hens receiving iodine and those not receiving iodine throughout the six trials, the results suggest that the iodine-fed hens were of slightly better health than the others, but the differences were not exceedingly large and were probably due to chance.

The inconsistent results of iodine feeding, obtained with the groups of hens receiving iodine and their respective control lots (those not receiving iodine), clearly demonstrate that the differences are not biologically significant. If this applies to an area as low in iodine as Minnesota, it is also likely to apply to other parts of the world.

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